

(19) World Intellectual Property
Organization
International Bureau



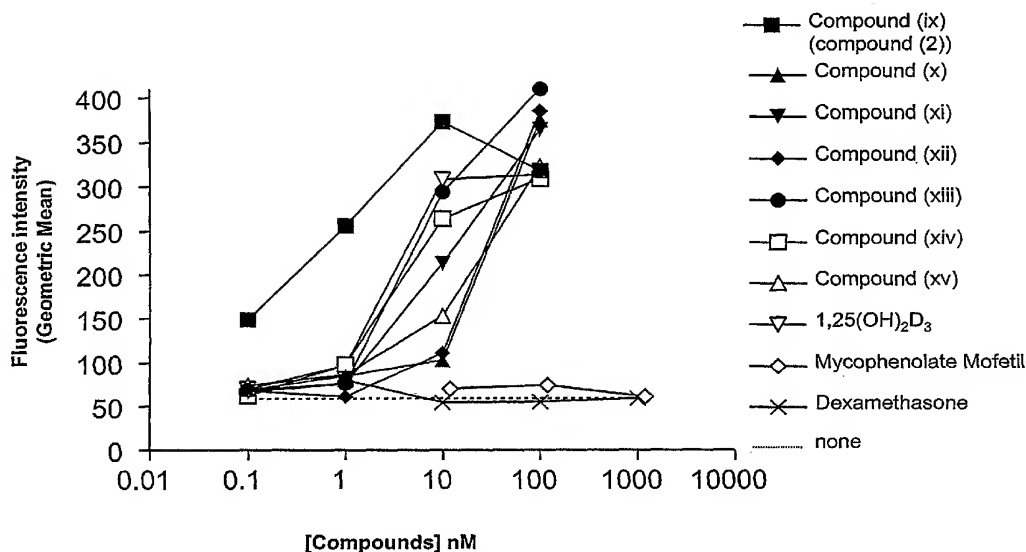
(43) International Publication Date
18 November 2004 (18.11.2004)

PCT

(10) International Publication Number
WO 2004/098522 A2

- (51) International Patent Classification⁷: **A61K**
- (21) International Application Number:
PCT/US2004/013703
- (22) International Filing Date: 30 April 2004 (30.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/466,638 30 April 2003 (30.04.2003) US
- (71) Applicant (for all designated States except US): **BIOX-ELL S.P.A.** [IT/IT]; Via Olgettina, 58, I-20132 Milano (IT).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **ADORINI, Luciano** [IT/IT]; via Augusto Righi, 8, I-20133 Milano (IT). **PENNA, Giuseppe** [IT/IT]; Via Cervino, 23, I-20095 Cusano (IT). **USKOKOVIC, Milan, R.** [US/US]; 253 Highland Avenue, Upper Montclair, NJ 07043 (US). **MAEHR, Hubert** [US/US]; 30 Balsam Road, Wayne, NJ 07470 (US).
- (74) Agents: **LAURO, Peter, C.** et al.; Edwards & Angell, LLP, P.O. Box 55874, Boston, MA 02205 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: GEMINI VITAMIN D₃ COMPOUNDS AND METHODS OF USE THEREOF



(57) Abstract: The invention provides Gemini vitamin D₃ compounds, methods for using the compounds to treat vitamin D₃ associated states and pharmaceutical compositions containing the compounds.

WO 2004/098522 A2